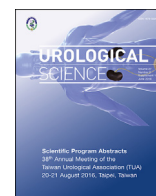


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## ISTUA Podium-1

## Oncology

## IPD01:

**METFORMIN IMPROVE UPPER TRACT UROTHELIAL CARCINOMA SURVIVAL IN TAIWANESE PATIENTS WITH TYPE 2 DIABETES**

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**Purpose:** The oral diabetes medicine metformin might have chemopreventive effects against cancer which was discussed before. However, no clinical study exists for analyzing the effect of metformin in upper tract urothelial carcinoma survival condition in type 2 diabetes patients which presents an unusual feature in Taiwan. Therefore, we want to realize if metformin can improve survival rate in upper tract urothelial carcinoma patients through a population-based analysis.

**Materials and Methods:** The reimbursement databases of all Taiwanese patients with a newly diagnosis of upper tract urothelial carcinoma between 2003 and 2011 ( $n = 4418$ ) were retrieved from the National Health Insurance. Then we just extract type 2 diabetes mellitus patients with more than two prescriptions diabetes mellitus drugs and delete only 1 prescription of metformin in prior 6 months ( $n = 826$ ). We calculate hazard ratios by Cox regression for ever-users and never-users with SAS statistical method.

**Results:** Among 826 enrolled patients, there are 358 patients never using metformin and 468 ever take more than 2 prescription of metformin. 314 patients are male and 512 are female. The median survival time is 4.25 years for never using metformin and 6.97 years for ever-users and the difference is significant statistically. ( $P = 0.0005$ ) We also assess subgroup of patients who received standard operation of nephroureterectomy and it also revealed metformin have better survival rate.

**Conclusion:** This study suggests that metformin use is associated with improving survival rate of upper tract urothelial carcinoma in patients with T2DM.

## IPD02:

**LONG-TERM RESULT OF TOTAL URETERECTOMY WITH ILEAL-URETERAL SUBSTITUTION IN THE TREATMENT OF URETERAL CANCER, A SINGLE-CENTER EXPERIENCE**

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**Purpose:** In the treatment of ureteral urothelial carcinoma, renal-sparing procedures are of great importance for some well-selected patients. However, these procedures may carry risks of under-staging and may not be feasible in multifocal tumor. We performed total ureterectomy in order to achieve maximal resection of the pathological ureter, and repaired the ureteral defect with ileal-ureteral substitution.

**Materials and Methods:** We retrospectively reviewed the medical records of all patients who underwent total ureterectomy with ileal-ureteral substitution for ureteral urothelial carcinoma at our center from January 1988 through December 2015. Patient demographics, baseline renal function, disease etiology, surgical procedures, pathology reports,

perioperative and long-term complications, long-term renal function, and the oncological outcome were recorded for analysis.

**Results:** A total of eight patients received total ureterectomy with ileal ureteral substitution with a mean follow up period of 81.8 months. Indications included solitary kidney, chronic kidney disease, and bilateral disease. The common perioperative complications were anastomotic urine leakage and temporary hemodialysis, and the long-term complication was mainly urinary tract infection. Preservation for renal functional was good, with only one deteriorated patient that need life-long hemodialysis. Only one patient (12.5%) experienced upper tract recurrence, and three patients (37.5%) had bladder recurrence during follow up. The 5-year recurrence free survival and cancer specific survival rate were 50% and 75%, respectively.

**Conclusion:** Total ureterectomy with ileal ureteral substitution is a feasible choice to treat ureteral UC when renal-sparing procedure is indicated. It provides good long-term oncological outcome over upper tract, and also preserves the renal function.

## IPD03:

**ASSOCIATION OF PREOPERATIVE PROTEINURIA WITH RENAL FUNCTIONAL OUTCOMES AFTER OPEN PARTIAL NEPHRECTOMY IN PATIENTS WITH AN ANATOMICALLY OR FUNCTIONALLY SOLITARY KIDNEY**

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**Purpose:** Nephron-sparing surgery is required for patients with an anatomically or functionally solitary kidney, for postoperative renal function optimization. Open partial nephrectomy in the solitary kidney is associated with reliable, long-term renal function, preventing progression to dialysis. Therefore, we aimed to identify the preoperative factors associated with renal function decline after open partial nephrectomy.

**Materials and Methods:** Patients who underwent open partial nephrectomy for a renal tumor at our institution between 1986 and 2014, excluding those who underwent ex vivo partial nephrectomy, were retrospectively analyzed. Multivariate linear regression analysis was used to test associations of a postoperative decrease in the estimated glomerular filtration rate (eGFR) with perioperative conditions such as the preoperative eGFR, preoperative proteinuria, tumor size, and intraoperative renal ischemia time. Survival rates were analyzed using the Kaplan-Meier method and log-rank statistics.

**Results:** In total, 83 patients were included in this study; 5 were excluded. The median follow-up period for the remaining 78 patients was 34 months. The mean preoperative eGFR, tumor diameter, operative time, renal ischemic time, and estimated blood loss were  $51 \pm 14$  ml/min/1.73 m<sup>2</sup>,  $34 \pm 22$  mm,  $243 \pm 62$  minutes,  $41 \pm 22$  minutes, and  $355 \pm 333$  ml, respectively. In 18 patients (23%), the postoperative eGFR was  $<30$  ml/min/1.73 m<sup>2</sup> 12 months after surgery. Only 1 patient needed chronic hemodialysis 12 months after surgery. On multivariate analysis, preoperative proteinuria (odds ratio [OR] 8.7, 95% confidence interval [CI] 1.6–58.8,  $P=0.01$ ) and eGFR (OR 0.83, 95% CI 0.74–0.91,  $P=0.001$ ) were significant predictors of a decrease in eGFR to  $<30$  ml/min/1.73 m<sup>2</sup> after surgery. The probability of freedom from eGFR  $<30$  ml/min/1.73 m<sup>2</sup> after 24 months

was higher in patients without preoperative proteinuria (76% vs. 94%,  $P=0.0027$ ).

**Conclusion:** Preoperative proteinuria could help stratify patients according to the risk of renal function exacerbation.

#### IPD04:

#### TUMOR CONTACT SURFACE AREA IS ASSOCIATED WITH VOLUME LOSS AND FUNCTIONAL DECLINE AFTER PARTIAL NEPHRECTOMY

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**Purpose:** We propose a formula of calculate-based contact surface area (CSA). We examined the correlation of contact surface area and renal volume loss and the predictability for renal function after partial nephrectomy.

**Materials and Methods:** We conducted a retrospective study in patients who underwent partial nephrectomy between January 2012 and December 2014. Based on abdominopelvic CT and MRI, we calculated the contact surface area with the formula " $2\pi \times \text{Radius} \times \text{Depth}$ "; while resected and ischemic volume (RAIV) was determined by the equation " $[2w^2 + 3w(r+d) + 6rd] \times w \times \pi / 3$ ". We evaluated the correlation between CSA, RAIV and perioperative parameters. And we comparatively analyzed the ability of CSA and RAIV to predict the reduction in renal function.

**Results:** There were 35, 26, and 45 patients receiving OPN, LPN, RPN respectively. The mean $\pm$ SD contact surface area was  $30.7 \pm 26.1 \text{ cm}^2$ , and the mean $\pm$ SD RAIV was  $19.1 \pm 14.4 \text{ cm}^3$ . On Spearman correlation analysis we found that CSA and RAIV were highly correlated (coefficient: 0.99,  $p < 0.001$ ). In univariate analysis, BMI ( $p=0.02$ ), EBL ( $p=0.001$ ), RAIV ( $p < 0.001$ ), and CSA ( $p < 0.001$ ) significantly affected postoperative renal function. In ROC curve analysis, both CSA and RAIV have good ability to predict more than 10% change of estimated glomerular filtration rate (AUC: 0.86 vs. 0.87). There is no significant difference in AUC between CSA and RAIV. The area difference in PCE10 was 0.002 ( $p=0.51$ ).

**Conclusion:** In our study, CSA and RAIV were correlated with several perioperative outcomes and affected post-operative renal function. The ability to predict post-operative renal function between CSA and RAIV was nearly identical. Since CSA was simpler to use, and may possess less interobserver variability in comparison with RAIV, we believe that CSA can represent renal parenchymal loss.

#### ISTUA Podium-2

#### Oncology

#### IPD05:

#### CHARACTERISTICS OF EARLY-ONSET HEMATOTOXICITY OF SUNITINIB IN JAPANESE PATIENTS WITH RENAL CELL CARCINOMA

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**Purpose:** To identify the characteristics of early-onset hematotoxicity of sunitinib in Japanese renal cell carcinoma (RCC) patients.

**Material and Methods:** Seventy-nine patients were treated with sunitinib as 6-week cycles of "4-week on 2-week off" schedule. To evaluate early-onset hematotoxicity, we compared patients with dose reduction during the first cycle (dose-reduced group,  $n=57$ ) and those who maintained the initial dose (dose-maintained group,  $n=22$ ). ABCG2 and flt-3 genotypes were analyzed for association between hematotoxicity and reported gene polymorphisms.

**Results:** Mean relative dose intensity (RDI) was similar in two groups during the first two weeks of dosing in the first cycle, but was significantly lower in dose-reduced group during the last two weeks. Lymphocytopenia, thrombocytopenia, and increased aspartate aminotransferase were observed in dose-reduced group within the first two weeks. Genetic analysis indicated significantly higher frequency of flt-3 738T/C polymorphism in dose-reduced group, but no significant difference in ABCG2 421C/A polymorphism.

**Conclusion:** This study showed a high incidence of sunitinib-induced hematotoxicity in Japanese RCC patients, many of whom need dose adjustment during the first cycle. Further studies should verify whether dose adjustment based on early-onset thrombocytopenia prolongs sunitinib treatment.

#### IPD06:

#### USE OF INTRAOPERATIVE STRAIN ELASTOGRAPHY OF SMALL RENAL MASSES TO DIFFERENTIATE BETWEEN ANGIOMYOLIPOMA AND RENAL CELL CARCINOMA

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**Purpose:** Elastography is a novel ultrasound modality that evaluates tissue stiffness. This modality has been applied for the preoperative diagnosis of breast, liver, prostate, kidney, and thyroid cancers. In this study we assessed the diagnostic value of intraoperative elastography in patients with renal tumors.

**Materials and Methods:** This prospective study included 46 patients (mean age 62.4 years; range 38–85 years) with a renal tumor or tumors who underwent partial or radical nephrectomy from May 2014 to February 2016. Strain elastography was performed intraoperatively and strain ratios (tumor versus normal parenchyma) were evaluated before renal artery dissection in 46 renal tumors (mean size 41.5 mm; range 9.0–127 mm). Histology of the resected tumors revealed clear cell renal cell carcinoma (RCC) in 32, chromophobe RCC in 3, papillary RCC in 1, multilocular cystic RCC in 1, invasive urothelial carcinoma (UC) in 1, oncocytoma in 1, angiomyolipoma (AML) in 6 and leiomyoma in 1.

**Results:** The median tumor diameters were 41 mm (range 12–80 mm) for clear cell RCC, 25 mm (range 18–52 mm) for chromophobe RCC, 39 mm for papillary RCC, 18 mm for multilocular cystic RCC, 66 mm for invasive UC, 17 mm for oncocytoma, 13.5 mm (range 9.0–127 mm) for AML, and 79 mm for leiomyoma. The median strain ratios were 1.67 (range 0.37–4.75) for clear cell RCC, 1.30 (range 0.81–2.52) for chromophobe RCC, 4.11 for papillary RCC, 2.29 for multilocular cystic RCC, 6.00 for invasive UC, 1.85 for oncocytoma, 1.13 (range 0.30–2.29) for AML, and 1.68 for leiomyoma. For tumors smaller than 40 mm, the median strain ratio was significantly higher in RCCs (clear cell, chromophobe, papillary, and multilocular cystic;  $n=20$ ) compared with AMLs ( $n=5$ ) (2.09 [range 0.37–4.11] versus 1.11 [range 0.30–1.18]) ( $p=0.010$ ). According to receiver operating characteristic curve analysis, the optimal cut-off value for distinguishing between RCCs and AML was 1.29, with a sensitivity and specificity of 85% and 100%, respectively. The area under the curve was 0.880.

**Conclusion:** Intraoperative strain elastography may be a useful modality for differentiating between AML and RCCs in patients with renal masses smaller than 40 mm.

#### IPD07:

#### BIOPSY FOLLOW-UP IN PATIENTS WITH ATYPICAL SMALL ACINAR PROLIFERATION AND PROSTATE INTRAEPITHELIAL NEOPLASM IN PROSTATE BIOPSY

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**Purpose:** We investigated the prognosis and outcome of atypical small acinar proliferation (ASAP) and extensive high grade prostate intraepithelial neoplasm (PIN) in prostate cancer detection in Taiwan.

**Materials and Methods:** We retrospectively reviewed our prostate biopsy database containing data acquired over a 20-year period in National Taiwan University Hospital. Data collection was done by chart review. We analyzed patient in this study period with pathology reports including atypical glands, atypical small acinar proliferation, prostatic intraepithelial neoplasia after receiving prostate biopsy.

**Results:** A total of 66 patients were enrolled. 38 patients initially had atypical glands/ atypical small acinar proliferation; 26 patients initially had prostatic intraepithelial neoplasia; and 2 patient had atypical small